Indiana Department of Education
SUPPORTING STUDENT SUCCESS

CLASSROOM INNOVATION IN MATHEMATICS GRANT 2010-11

OVERVIEW

Purpose: From 2005 to 2009, state scores in mathematics were stagnant, rising only one percentage point over the four-year span. At the state level, IDOE is currently exploring new, innovative classroom strategies that will help to push mathematics in Indiana forward. One such strategy is the integration of digital curriculum and technology into traditional teaching methodologies.

The purpose of the program is to provide a select number of LEAs with the opportunity to use digital mathematics curricula, technology-based instruction, and interactive white boards in lieu of traditional textbooks. This grant provides an opportunity for LEAs to pilot digital curriculum which can be readily aligned to changes in standards and to determine its effectiveness with their student populations and within their contexts. Following the grant, LEAs will either continue the use of digital curriculum through their textbook rental program or discontinue use of the digital curriculum and seek an alternative for curricular materials. Digital curriculum would need to utilize innovative strategies for instruction and represent a significant break from the traditional textbook-oriented instruction and be approved by the IDOE, but it would not serve as a standalone, online course that replaces the classroom teacher. In order to evaluate the effectiveness of these strategies, awards will be limited to schools that propose plans for either: 6th Grade, 7th Grade, 8th Grade, and/or Algebra I. The results of this pilot program will be used to evaluate the effectiveness of digital curriculum and provide data for schools that may look at adopting digital mathematics curricula in the future.

This grant program is funded through the David C. Ford Fund.

Application: Please fill out each part completely. For assistance, you may contact Zach Foughty at zfoughty@doe.in.gov or Phone: (317) 233-5019

I. GENERAL INFORMATION

1. Corp #	2. Corp Name
1885	Wes-Del Community Schools

3. Corp Address (Street, City, State, Zip)	4. Telephone
10290 N CR 600 W, Gaston, IN 47342	(765) 358-4006

5. Contact Person's Name	6. Contact Person's Email Address
Michael Bush	mbush@wes-del.k12.in.us

7. Contact Person's Address (Street, City, State, Zip)	8. Contact Person's Telephone
10290 N CR 600 W, Gaston, IN 47342	(765) 358-4006

9. Superintendent's Name	10. Superintendent's Email Address
Stephen R. McColley	smccolley@wes-del.k12.in.us

11. # of Schools Participating	12. # of Students Being Served	13. # of Teachers Participating
1	285	3

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II. Project Abstract
Briefly describe the proposed project clearly and concisely using the space provided.

Wes-Del Community Schools is planning to implement a technology based Mathematics curriculum for all students in grades 6, 7, 8, Pre Algebra, Algebra I and Algebra I Remediation. The program is designed to meet the individual learning needs of students in the area of Mathematics and provide data needed to measure the educational growth of each student.

Wes-Del Middle/High School has identified in their school improvement plan the need to improve student achievement in problem solving and computation. Since 2006 our 6th grade ISTEP Math scores have ranged as follows, compared to the state average of students passing Math: 2006 15% below, 2007 4% below, 2008 1% below and in the spring of 2009 2% above the state average. In 7th grade: 2006 1% below, 2007 9% below, 2008 4% below and Spring of 2009 13% below. In 8th grade: 2006 1% above, 2007 4% above, 2008 4% below and Spring of 2009 5% below. On the Spring 2009 Alg I ECA only 28.9% of all of the students tested received a passing score. We have tried various interventions with mixed results and feel that being able to offer our students a more technology driven experience using the Aleks online math curriculum will provide an opportunity for our teachers and the students themselves, to spend additional time targeted at the specific learning needs of each individual student. The process of guiding the overall individual student learning instead of trying to force feed areas of general concern for a class or grade level of students, we feel, will be beneficial to the needs of the students and the teacher.

Wes-Del MS/HS continues to work toward becoming a true 1 to 1 school. We currently have five 1 to 1 classrooms and this grant would allow us to add three more. We have been moving in this direction for some time and have put in place the backbone components necessary to implement our plan. In January of this year we purchased and installed a MERU wireless system console that will allow us to expand our wireless capabilities throughout all buildings. We currently have wireless capabilities in our 3rd, 4th, and 5th grade classrooms with net books currently in use in our 3rd and 4th grade classrooms. We will have net books for our 5th grade classrooms by January of 2011. We also have wireless capability in both of our high school Science classrooms for use with their laptops.

Our plan, with the help of this grant, is to install wireless access points in each of the three math classrooms that will be participating in the grant and purchase a classroom set of 25 net books for each classroom. This will allow all of our students in grades 6, 7, 8, and all Pre-Algebra and Algebra I students to participate in the Aleks online math curriculum and the grant. The net books will also provide the necessary technology to participate in the Acuity, ISTEP+ and ECA online testing programs that are required for the grant. Although providing an individual computer for each student participating in the identified levels of Math is not a requirement of the grant, it is our desire to place the technology in the classroom so that it is available at all times to all of the students who are taking these math classes.

We also plan to integrate Mobi wireless slates in each classroom to enable all students in each classroom to interact with the Interactive Whiteboard without having to get up and physically touch the board. This option we feel will save time, lend itself to better classroom management, keep users from shading the board and still allow all students the ability to use the interactive whiteboards.

Section III

Software Choice and Rationale

Wes-Del HS/MS has chosen to implement the Aleks online math solution. All teachers and administrators involved in this grant opportunity took time to look at four technology driven programs that could be used to teach the targeted levels of Mathematics which included Compass Learning, Agile Minds, Aleks and I-Core. After participating in webinars, whether live or recorded, or personal presentations, the teachers and administrators spent time investigating the information they attained and pursued additional information about each program. At the conclusion of this process each participant felt that the Aleks program best met the needs of our students and staff for the following reasons.

The Aleks program does not contain assessments or learning practice that involves multiple choice answers for students. This eliminates the guessing component for students and provides a more valid measurement of attained student knowledge. By forcing the students to actually enter real math answers it encourages students to depend on the knowledge they are learning and have learned.

The Aleks program also uses an algorithm approach to producing student problems instead of just providing a database of multiple problems that can be chosen at random or that can be practiced until they memorize the problem. By using the algorithm approach, students sitting next to each other are guaranteed not to be working on the same problem even though they are working on the same standard or sub skill. Using this same approach, at anytime during the practice component a student may select a solve button that explains step by step how the problem can be solved. Immediately after

showing the student how to solve the problem the program generates an exact replica of the problem with new values or facts that allow the student to apply the same problem solving principles with different variables.

Providing a record of student growth that can be monitored by the student as well as the teacher and parents is also provided in Aleks. After each student participates in an assessment, the program provides a diagram which records where the student started originally and what percentage gain the student has made. This will provide an incentive for all students to improve including those students who feel they might not be able to improve or might not be able to understand math.

Lastly and very importantly, Aleks provides a wide variety of ways in which teachers can implement the Aleks program. Aleks can be used in a way that the students are self directed in their learning by the program's teach and assess process. This process allows the program to assess known topics, recently learned topics and yet to be learned topics to guide the student through the process of mastering the standards of the subject. The program can be used as a totally teacher guided process that is aligned with a supplemental textbook, if desired, and also allows the teacher to direct all instruction while using technology to support and enhance the learning process. Aleks can also be used as a combination of the aforementioned processes allowing the teacher to guide, introduce and reinforce where necessary on a large group, small group or individual basis. This process allows the teacher to be a guide to individual student learning instead of just a disseminator of basic math information to an entire class or group of students.

Professional Development

Although the teachers who will be involved in the digital content delivery process are aware of what interactive whiteboards are and have seen them in use, none of them have used them as an instructional tool in their classrooms. We currently have four classrooms with permanently mounted interactive whiteboards which are in use each day by those classroom teachers. Since the teachers involved in this grant do not have any experience with interactive whiteboard use, the following implementation schedule including a staff development schedule will be used.

May 24th -May 28th – Three 77" interactive whiteboards will be ordered by Mike Bush

June 7th – June 11th – Three 77" interactive whiteboards should arrive at Wes-Del Community Schools

June 14th – June 25th – Three 77" interactive whiteboards will be installed based on the availability of maintenance department schedule by Doug Carroll.

July 12th - July16th – Three math teachers involved in the grant will be provided a full day of training in the use of the interactive whiteboards and the associated software that comes with them by Brad Lowhide of CIM Technology Solutions.

July 12th – July 16th – The math teachers will be provided a full day of training on the use and implementation of Aleks online Math software for their appropriate grade levels and subjects by Lisa Hall of Aleks.

July19th – July 23rd – The teachers will be provided with up to a full day of training on the use of their net books and how the new Aleks program will look and feel to their students in the classroom by Mike Bush and Graig Davis, the technician at Wes-Del.

July 19th – August 6th – Teachers will be paid for minimum of two days to collaborate, plan and develop lessons that will implement Aleks in their classrooms beginning the first day of school August 12, 2010 guided by Mike Bush.

September 27th - October 1st – Teachers will participate in a half day training session on increasing the effective use of the interactive whiteboard by Brad Lowhide of CIM Technology Solutions.

October 11th - October 16th - The teachers who have been working with the Aleks software will be provided up to one half day of training in using the Aleks software more effectively and using the accumulated data to guide the instructional process by Lisa Hall of Aleks.

December 6th - December 10th – Teachers will participate in a half day training session on increasing the effective use of the interactive whiteboard by CIM Technology Solutions if necessary.

After the teachers have used the whiteboards in their classrooms for about a month, the teachers will participate in an after school training session to incorporate the more intricate operations of the boards. Teachers will also be encouraged to learn and share new concepts or uses for the interactive whiteboards with their colleagues who are currently using interactive white boards to enhance the learning and instructional process.

Implementation Plan – Digital Content

In order to provide the proper implementation of the digital software, the teachers will complete online lesson plans using our existing student management system. The administrator(s) involved in the grant will be able to monitor the use of the software and also the performance of the students who are using the software since the administrator(s)

have access to lesson plans and student grades provided in our student management system. The teachers will also be required to meet at least 30 minutes each week to update each other on how the implementation is going and to discuss issues that come up. They will also provide the administration with feedback on whether more staff development is necessary and in what specific areas they need more training to effectively use the software and the new technology in general.

Staff development relating to the online software is scheduled as follows:

July 12th – July 16th – The math teachers will be provided a full day of training on the use and implementation of Aleks online Math software for their appropriate grade levels and subjects by Lisa Hall of Aleks.

July 19th – August 6th – Teachers will be paid for a minimum of two days to collaborate, plan and develop lessons that will implement Aleks in their classrooms beginning the first day of school August 12, 2010 by Mike Bush.

October 11th - October 16th - The teachers who have been working with the Aleks software will be provided up to one half day of training in using the Aleks software more effectively and using the accumulated data to guide the instructional process by Lisa Hall of Aleks.

Implementation Plan - Interactive Whiteboards

Wes-Del Middle/High School has already invested funds so that each classroom in the middle/high school has a ceiling mounted projector and a 70" screen. The teachers have made great use of this technology and are using it more effectively everyday. The school also has five 1 to 1 classrooms up and running with 30 computers in each classroom which includes two English classrooms, two Science classrooms, and one

Social Studies classroom. The two English and Science classrooms have permanently mounted 77" interactive whiteboards installed in their classrooms and they also have eInstruction mobile teaching slates for their use. Using the grant funding, we are planning to purchase the 77" eInstruction Next Generation Inter Write Dual Board from CIM Technology Solutions. In conjunction with the Inter Write Boards we are planning to purchase a Mobi System for each teacher's classroom. The system includes one teacher wireless slate and two student wireless slates. The slates will allow the teacher to move around the classroom while they are providing group instruction. The two student wireless slates will allow the students to interact with the white boards from their seats. As part of the Inter Write White Board, the software allows the teacher to split the screen in to various sections and allows the teacher and/or students to work together or demonstrate their learning to the class as a whole.

The implementation and training for the Interactive Whiteboards will be as follows:

May 24th -May 28th – Three 77" interactive whiteboards will be ordered by Mike Bush.

June 7th – June 11th – Three 77" interactive whiteboards should arrive at Wes-Del Community Schools

June 14th – June 25th – Three 77" interactive whiteboards will be installed based on the availability of maintenance department schedule by Doug Carroll.

July 12th – July 16th – Three math teachers involved in the grant will be provided a full day of training in the use of the interactive whiteboards and the associated software that comes with them by Brad Lowhide of CIM Technology Solutions.

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September 27th - October 1st – Teachers will participate in a half day training session on increasing the effective use of the interactive whiteboard by Brad Lowhide of CIM Technology Solutions.

December 6th - December 10th – Teachers will participate in a half day training session on increasing the effective use of the interactive whiteboard by CIM Technology Solutions if necessary.

Implementation Plan - Online Assessments

As documented throughout the grant, Wes-Del Middle/High School currently has the five 1 to 1 classrooms. In addition, Wes-Del Middle/High School also has four general purpose computer labs with twenty-nine stations in each lab. All of our 1 to 1 classrooms and computer labs are currently hard wired and the individual machines attach to the network at a minimum rate of 100 MB. The machines are directly patched to Cisco layer 2 or layer 3 switches which are connected to our servers via our Gigabit fiber optic backbone which is located within each building and between buildings.

Instead of using the money provided with the grant to set up one 25-30 computer lab that the students would have to share, we are planning to use the money from the grant to set up three twenty-five station net book math 1 to 1 classrooms at the Middle/High School. This concept will truly allow the students to access technology when and where they need it and drive an online curriculum. Although we are aware that the $25,000 included in the grant will not be sufficient to set up all three math

classrooms, our school corporation is committed to making up any differences in cost. We are budgeting $400 per net book for a total of 75 net books which amounts to $30,000. We will need to purchase three additional wireless radios (one for each room) to attach the net books to the network at a cost of just over $900 each. We will also need to purchase two devices that will power the wireless radios through our current network infrastructure at a cost of just over $600 each. By adding these three classrooms, we will increase our environment to a total of twelve classrooms or computer labs that can be used for testing. Our school corporation is committed to making this program successful and is willing to continue to invest the necessary support to ensure that student's, teacher's and parent's needs are met both now and in the future.

When planning and purchasing the infrastructure for our wireless network we placed 1 to 1 classrooms and wireless based technology as one of our top priorities. We chose the MERU wireless solution because it provides the ability for any device to connect to the network at the fastest speed the device is capable of running. Unlike other wireless solutions that slow the communication of the wireless network down to the slowest device on the wireless network, MERU provides a direct connection at B, G, or N to each device based on how fast the device will communicate. This will provide the opportunity for each device that connects to the wireless network to run as fast and efficiently as possible.

Also in our planning we took into account that we currently have two T1 lines that are serviced through ENA and a business account serviced through Comcast that includes 16 MB download and 2 MB upload service. We have installed a Linkproof device to manage the integration of both sources into and out of our network. Our plan is

to add one additional T1 line, supplied by ENA, before July 1st of this year to bring our total bandwidth to 20.5 MB download and 6.5 upload. We think this bandwidth will be sufficient enough for us to conduct Acuity, ISTEP+ and ECA testing within the windows and guidelines that are provided for each test especially since we can manage bandwidth and protocols with our Lightspeed solution.

After contacting the state assessment division and also CTB it appears that as long as our net books provide a vertical resolution of 768 we should be able to use the net books for testing. If for any reason we find that the net book and wireless plans we have put in place or are planning to put in place do not meet the needs of the testing requirements for Acuity, ISTEP+ and ECA we would still have nine hard wired computer labs or classrooms that could be assigned for testing to meet the requirements set forth in this grant. We are confident in the plans we have developed but have also provided a safeguard against any situations that may arise concerning the testing component of the grant.

The students who are participating in the grant program, which includes all 6th, 7th and 8th grade students as well as all 9th and 10th grade students who are taking Pre Algebra or Algebra I should become very familiar with taking assessments using computers. These students will be using the net books in their classrooms on a daily basis and in accordance with the grant a minimum of 80% of their overall instruction will be provided using technology services and/or software. By the very design of the online solution we have chosen, we know that each student will be receive an initial assessment using the Aleks program and additional assessments will be scheduled after the student has completed a minimum of 5 learning sessions and a maximum of 10 learning sessions.

Also, each student will take regular teacher created standardized assessment at the conclusion of each nine week grading period and at the end of each semester. Accordingly, the ECA tests have practice sessions that are built into the testing time frame. Since students are taking all of their exams using the Aleks system via the computer, they should have ample practice in the process of taking computerized tests. The experience they receive in the Math classrooms should answer questions and ease concerns for taking the Acuity, ISTEP+ and ECA tests using a computer rather than paper and pencil.

In conclusion, Wes-Del Community Schools have made a commitment to integrating technology into all aspects of the educational process. This grant will allow us to accomplish some of our goals more quickly than we have planned while providing our students the opportunity to learn in a 21st Century learning environment.

IV. BUDGET

See program overview for allowable costs. List each expenditure on a separate line.

Expenditures Budget
(Use a separate line for each expenditure, and add rows as needed)

Expenditure Description	Person Responsible	Cost per Unit	Number of Units	COST
Digital curriculum subscriptions (list vendor)	Aleks Lisa Hall	$30	285	8,550
Professional development reimbursements	Michael Bush	300	3	900
Interactive whiteboard (list make and model number) einstruction 1077	CIM- David Zaiser	1200	3	3,600
eInstruction Mobi system CB-A-MOB001-0001, 002-0001, 500-0001	CIM- David Zaiser	1160	3	3,480
Acuity Algebra set-up fee and training	CTB Jerry McCanna	2500	1	2,500
Cost for Acuity Algebra administration (per student) grade 8	Jobina Wiemer	2.30	25	50
Cost for Acuity Algebra administration (per student) grades 9 & 10	Jobina Wiemer	9.30	50	470
Costs related to online assessment - Net books for students	Michael Bush	400	62	24,800
			Total Funds Requested	$44,350

LOCAL SHARE*

***This is not a requirement for the grant, but it will help us to determine the additional resources need at the local level.**

Expenditures Budget
(Use a separate line for each expenditure, and add rows as needed)

Expenditure Description	Person Responsible	Cost per Unit	Number of Units	COST
Professional Development	Michael Bush	100	6	600
Additional lab set up – 3 wirless APs	Michael Bush	1000	3	3,000
Additional lab set up – 2 inline power switches	Michael Bush	600	2	1,200
Additional Costs for Interactive Whiteboard (e.g. installation materials)	Doug Carroll	100	3	300
Additional Cost associated with the netbook purchase	Michael Bush	13	400	5,000
			Total Funds Requested	$ 10,100

V. ASSURANCES

By checking each box below, you agree to the following assurances:

- ☒ The LEA assures that Acuity online assessments will be administered to assess student growth during the grant period (e.g. Acuity Predictive or Pre/Post Test; the exact assessments will be determined by the DOE, but will not exceed 3 tests during the school year, excluding ISTEP+ and ECA).
- ☒ The LEA assures that, given favorable results on a statewide level, it will give serious consideration to sustained use of digital curricula in all schools in the LEA until the next textbook adoption cycle (2016-17 school year).
- ☒ The LEA assures that the selected digital curriculum will be implemented, with fidelity, as the core curriculum for all mathematics classrooms (6th Grade, 7th Grade, 8th Grade, and/or Algebra I) at each school that receives grant funds, for the duration of the school year. "With fidelity" implies that districts will take the steps necessary to implement the digital curriculum as outlined by the vendor.
- ☒ The LEA assures that teachers will be provided with professional development necessary to implement digital curriculum with fidelity. Professional development includes, but is not limited to, training on digital curriculum software, integrating interactive whiteboards into a standards-based classroom, and using Acuity assessments to guide instruction.
- ☒ The LEA assures that funds used for interactive whiteboards will remain in mathematics teacher classrooms for the duration of the program. Any realignment of current inventory for these purposes will also remain in effect for the duration.
- ☒ The LEA assures that all 7th and 8th grade students in Algebra I will take the Algebra ECA online.
- ☒ The LEA assures that all students will take the ISTEP+ online, unless the school can demonstrate an inability to test all students online.
- ☒ The LEA assures that all teachers that use digital curriculum will participate in an *anonymous* evaluation of the program to determine its ability to impact teaching methods.
- ☒ The LEA assures that classrooms in which digital curriculum is being used will be available for observation by certain members of the Department of Education, with reasonable notification, to provide for a qualitative analysis of program effectiveness.
- ☒ The LEA assures that all students will complete a survey regarding the effectiveness of the digital curriculum.
- ☒ The LEA assures that all hardware and software implementations will be put in place before the start of the 2010-11 school year and that professional development related to this program will begin before the start of the 2010-11 school year.
- ☒ The LEA agrees to keep such records and to provide such information to the State educational agency, as may be reasonably required for fiscal audit and program evaluation (consistent with the responsibilities of the State educational agency under this part).

VI. SIGNATURES

List the management team of this grant for each school. Each member of the management team should also sign below. Complete this sheet for *each* school that is included in the district's implementation plan.

School Name: Grade Levels:

NAME	POSITION	Signature
1. Stephen R. McColley	Superintendent	Stephen R McColley
2. Michael Bush	District Math Coordinator	Michael A Bush
3 Michael Bush	District Assessment Coordinator	Michael A Bush
4. Derick Bright	Principal	
5. Amy Olson	Algebra Team Leader	Amy S Olson